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An extension on attendance and efficiency in turkish state theaters

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Abstract

This paper investigates the attendance and efficiency of state theaters in Turkey. It is found that public theater attendance is price inelastic since theater expenses occupy a small space in theatergoers' budget sets. This is true since theater tickets are subsidized by almost 97 percent. Touring to less developed cities attract more attendance per performance compared to changing the stages for a particular play on most developed cities. This finding suggests that state theaters should tour to different less developed cities more. This can diminish the criticism to state theaters also since popular press criticizes the state theaters in terms of producing many ATMactors. Results of 2003-2004 season indicate that performance is not a significant determinant of total paid attendance, whereas 2004-2005 season indicates that plays are performed too many times since performance is negatively and significantly affecting total paid attendance.

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1. Introduction

General Directorate of State Theaters (GDST) is one of the most important and controversial institutions in Turkey since the beginning of its establishment. It is one of the most important *mission institutions* to establish and introduce the Western culture and lifestyle especially in Ankara first, which is the capital city of Turkey. Toward the end of the second half of the 1940s, the first official stage of State Theater was opened in Ankara. Today, the state produces live theater on twenty-eight stages in twelve different cities.

The main purpose of this paper is to investigate the determinants of total paid attendance and efficiency of live theater performances staged by the GDST in Turkey. This paper also contributes to the literature of efficiency in public sector institutions in Turkey. Efficiency issues in service producing institutions of the public sector has been addressed in the popular press in Turkey, however, this is one of the very small number of formal studies investigating the issue.

Productivity and/or efficiency are used interchangeably in many different earlier contexts in economics. Especially productivity as a concept has a special meaning in cultural economics since it was the key concept of Baumol and Bowen's *cost disease* (1965). It is claimed that productivity in the performing arts by their nature is difficult to increase since input structure is not changing to produce output (artistic production) over the years or with technological progress in other sectors. This argument can be investigated from different perspectives; however, it is outside the scope of this paper. What is more relevant to the current paper is the fact that productivity in performing arts as Baumol and Bowen (1965 and 1966) understand, is a more aggregate concept than efficiency used in this paper. In addition, in Baumol and Bowen (1965 and 1966), productivity is a longer term concept than efficiency in this paper. In short, productivity in the performing arts as in its original use is more related to the performing arts *sector* in general, efficiency is more related to individual performing art *companies or groups* in terms of how efficiently they use their resources to reach their stated goals.

It is observed, in practice, that productivity, efficiency, and performance of theaters are used interchangeably to evaluate how rationally theaters are using their resources (Theater Facts 2003 and 2004). Theater resources can be fiscal resources like annual expenditure budgets or physical resources like number of actors or artists.

Therefore, there are many ways of measuring efficiency according to the theatrical production view. Theaters might be producing shows, performances, sold tickets, services of artistic or cultural education, prestige, pleasure, and entertainment to name some. For instance, Throsby and Withers (1979) give their preference to measure the output as the number of tickets actually sold. Many studies use total paid attendance per performance, number of performance or attendance per capita as the basic measures of productivity (Theater Facts 2003 and 2004). Serrano (2006) employs data envelopment analysis (DEA) to investigate the managerial efficiency of regional theaters of Spain. These studies require a number of cross section units of individual theater companies or groups to compare their relative efficiency. In addition, if the theater groups are different in their theatrical views or goals, these statistical methods will not be desirable to investigate their efficiency. For example, some theaters produce plays to create only prestige, while some others have the goal of increased number of audience, etc.

However, in order to investigate the efficiency of Turkish State Theaters, we focus our attention on the number or determination of performances per play. The number of performances per play itself may not be a measure of efficiency per se. However, determination of number of performances is taken here as a measure of efficiency. This study is literally the second after Akdede and King (2006), in terms of using the determination of number of performance as a measure of efficiency. Even though efficiency is studied in

Akdede and King (2006), the emphasis was on the estimation of demand for Turkish public theaters. This paper, however, is especially investigating and emphasizing inefficiencies to see whether inefficiencies are just one season phenomena or they are lasting in more than one season. Akdede and King (2006) was using only 2002-2003 season data since only that data set was available by the time that study was conducted. Now, data for 2003-2004 and 2004-2005 seasons are available. And the robustness check is necessary to see whether inefficiencies are lasting longer than one season or not.

A play is considered to be performed too many times or too little if it is performed exogenously. Therefore, both high and low number of performances would be efficient if they had a reason to be so. Average number of performances in many theaters in the world is between fifteen and sixteen times per play for the second half of 1990s and beginning of the 2000s (Corning and Levy, 2002). They are, for the Turkish State Theaters, on average 29 and 31 for the 2003-2004 and 2004-2005 seasons respectively¹. This may be a sign of inefficiency. The determinants of performances can help us investigate some of the efficiency problems in State Theaters in Turkey.

According to a personal interview, which is conducted by the author, with the Chair of the Dramaturgy Council of State Theaters in Ankara, the chair claims that the number of performances of a play is determined by the attendance and central administrative decisions made in Ankara. According to the Chair of the Dramaturgy Council, a particular play may be taken out of the repertoire if, for example, the actors, stage managers and directors cannot get along for some reason. It is mentioned by the Chair of the Dramaturgy Council that it is sometimes observable that there are conflicting interests among actors, stage managers, and directors since most actors, directors, and managers also work outside of State Theaters like in TV, movie industry, TV series, and sitcoms. The Chair states that from time to time there would be some scheduling conflicts along with some other conflicts caused by artistic jealousy and disagreement. Since every actor and staff member in the theater is a government official, it is very difficult to end their employment. It is so because they have lifetime job security. The main goal, among many other minor goals, of state theaters in Turkey is to increase the number of theater attendance. Therefore, combining the claims of the Chair of Dramaturgy Council and stated main goal of state theaters (increasing attendance), we investigate the efficiency of state theaters in terms of determination of the number of performances.

The lack of auditioning for roles and lifetime job security can also be a source of personnel problems that affect the system's efficiency. It is also argued in the popular press and art circles that there is also corruption in state theaters in the sense that the work of some writers and directors runs longer than that of others or some writers are given favors in terms of including their plays in the repertoire². In other words, there is no established rule for the number of performances of the plays in State Theaters. In September 2005, the Director of General Directorate of State Theaters was fired by the Culture Minister of Turkey, and right before the 2005-2006 theater season, popular press questioned even the legitimacy of State Theaters in Turkey along with many other issues related to the State Theaters. For example, the term of *ATMactors* is coined (even much before September 2005) to refer to actors working officially for the State Theaters, but taking no roles in State Theater plays. Instead, they are in the film business, TV sitcoms, and dubbings of foreign movies. Their only relation with the State Theaters is to go to an ATM to get their monthly salaries and secured pension plans.

¹ Own calculations. Touring performances are taken out of calculations. If they are included, the average numbers are even much bigger.

² Daily newspaper, Radikal June 25, 2006, addresses this issue.

Even though these are very important determinants of inefficiency, they are also outside the scope of the paper. Those reasons might be the causes rather than results of inefficiencies of the state theaters. The unavailability of data restricts the detailed statistical analysis of inefficiencies of state theaters. However, the determination of number of performances and exogeneity of performances are useful tools to analyze efficiency issues.

The paper is organized as follows. Next section lays out the methodology of estimating attendance and performance of plays equation. Section III gives the data and results and last section concludes the paper.

2. Methodology and previous work

Although the economics of live theater and performing arts and attendance to performing arts have been studied before (e.g., see Moore, 1968 and Throsby and Withers, 1979), this study is, to our knowledge, the second of its nature for Turkey's case after Akdede and King (2006). For a survey of recent work dealing with the attendance and demand for performing arts and live theater, see Borgonovi (2004), Corning and Levy (2002), Urrutiaguer (2002), Lévy-Garboua and Montmarquette (1996) and Throsby (1990, 1994).

This study, to our knowledge, is the second in terms of investigating the efficiency of theaters by using the total number of performances as the key determinant of efficiency. Of course, total number of performances is a key element of determining the efficiency of Turkish state theaters, not necessarily applicable all the theaters in every context. However, it is useful to analyze whether market (audience attention) or central decision making is more efficient in terms of resource use.

The literature about demand for and attendance to performing arts and theater is not reviewed here since it is reviewed in other papers such as Akdede and King (2006), Akdede (2006), and Corning and Levy (2002). The structure of Turkish state theaters is also analyzed in Akdede and King (2006).

First equation to be estimated here is the attendance equation. Following Urrutiaguer (2002), the general model is as follows:

$$Y = f(P, S, C, D) \quad (1)$$

where Y is the number of paying attendees for a given performance, P is the price charged for the performance, S the number of performances, C is the venue capacity and D is a vector of dummy variables representing some available qualitative characteristics of the play. In our case, Y represents the total paid attendance for the play during the given month and we must therefore adjust the basic model as follows:

$$(Y/S)_{it} = \alpha_0 + \alpha_1 S_{it} + \alpha_2 C_{it} + \alpha_3 P_{it} + \alpha_4 \sum_{x=0}^{t-1} S_{ix} + \sum_{x=1}^n \delta_x D_x + e_{it} \quad (2)$$

Dividing the dependent variable by the number of performances also reduces the effects of heteroskedasticity. Cumulative performances, $\sum_{x=0}^{t-1} S_{ix}$, are also included in one regression to see how current ticket sales are affected by the longevity of the play.

Define a latent variable as follows $y^* = (Y/S)$

Therefore, eq.(2) is a latent variable regression model and right censoring is taken into account in the following way.

$$y_i = \begin{cases} \bar{c}_i & \text{if } \bar{c}_i \leq y_i^* \\ y_i^* & \text{if } y_i^* < \bar{c}_i \end{cases} \quad (3)$$

where \bar{c}_i is fixed censoring point and it is calculated as capacity minus free tickets distributed per performance, $\bar{c}_i = \left[\left((S * C) - FreeTickets \right) / S \right]$. Free tickets are distributed to mostly

government officials to promote paying attendance. State Theaters don't advertise on TV and in popular newspapers. Eq.(2) is also estimated by a TSLS, taking into account the possibility of endogeneity of number of performances. One period lag of number of performances is used as an instrument in the regression III in Table 1 and 2.

The second equation to be estimated is a performance of play equation. The objective function of government office is to find the optimum number of performances since every performance of particular play has an opportunity cost. For a given budget, the government office is to optimize the number of performances. Price is not in the objective function of government since price is exogenous and announced in the beginning of the season. The government does not have the goal of revenue or profit maximization; therefore price is not included in the performance equation. The equation is as follows

$$S = f(Y, C, D) \quad (4)$$

$$S_{it} = \gamma_0 + \gamma_1 Y_{it} + \gamma_2 C_{it} + \gamma_3 \sum_{x=0}^{t-1} S_{ix} + \sum_{x=1}^n \theta_x D_x + e_{it} \quad (5)$$

Eq.(5) is estimated as a TSLS, with one period lag of paying attendance as an instrument for the paying attendance variable. Results of TSLS of eq.(5) are given in regression IV in Table 1 and 2. All the variables except for dummy variables are in natural logarithms. Therefore, estimated coefficients are related elasticity estimation.

3. Data and Estimation Results

We utilize data for the 2003-2004 and 2004-2005 seasons. 136 and 115 plays are performed in 2003-2004 and 2004-2005 seasons respectively. The smallest aggregation unit is one month. This means, for example, that we can see how many tickets were sold for a particular play in a given month, but not see how many were sold for each individual performance. Because performance data is aggregated at the monthly level, we treat each play performed in each month as a separate cross-sectional observation. This leaves us with 692 maximum observations for the 2003-2004 season and 558 maximum observations for 2004-2005 season. A panel of theaters over time would not be appropriate because we are interested in the various offerings of plays rather than following specific theaters over time. A panel of plays over time would be inappropriate for several reasons including lack of monthly variation in most variables, the extreme imbalance in the number of performance periods for different plays, and the evolutionary nature of live theater. Some plays are performed more than others in a given month (though none were performed at more than one theater in a given month), and not every play is performed every month since there are more plays than theaters.

All data are calculated from raw data provided by the General Directorate of State Theaters. Free passes are mostly given to government officials. A high-level administrator in the State Theaters has informed us that free passes are given to government officials with the expectation that they will promote sales by bringing more paying customers. It is useful to mention that the number of free passes per performance is higher than that of single tickets

per performance in all less developed cities with the exception of Trabzon (Akdede and King, 2006).

Table 1. Attendance and Performance for 2003-2004 Season

	Regression I	Regression II	Regression IIa	Regression III	Regression IV
Dependent Var. :	Paid attendance	Paid attendance	Alternative Efficiency Index (AEI)	Paid attendance	Performances
Estimation Method:	TOBIT Estimation	TOBIT Estimation	TOBIT Estimation	2SLS	2SLS
Constant	4.80*** (1.09)	5.79*** (1.37)	0.40*** (0.04)	4.62*** (1.73)	2.17*** (0.32)
Seat	0.70*** (0.04)	0.79*** (0.04)	0.0001** (0.00004)	0.79*** (0.07)	-0.02 (0.16)
Price	-0.20*** (0.06)	-0.31*** (0.09)	-4.03-E08*** (8.58-E09)	-0.22 (0.14)	
Number of Performances	-0.04 (0.03)	0.007 (0.04)	-0.02*** (0.001)	-0.07 (0.17)	
Cumulative Performances		0.03 (0.03)	-0.0004** (0.0002)	-0.004 (0.03)	0.005*** (0.001)
Free passes	-0.03 (0.02)	-0.03 (0.03)	-0.001*** (0.0002)	-0.05 (0.04)	
National Author	-0.13** (0.06)	-0.16** (0.06)	-0.003 (0.01)	-0.12** (0.05)	0.02 (0.07)
Less developed city(LDC)	-0.70*** (0.10)	-0.73*** (0.10)	-0.16*** (0.03)	-0.68*** (0.11)	-0.02 (0.10)
New season	-0.23*** (0.06)	-0.24*** (0.07)	-0.06** (0.02)	-0.23*** (0.08)	0.53*** (0.09)
Touring	0.04 (0.08)				
LDC*touring	0.36*** (0.10)		0.32*** (0.11)		
LDC*national author	0.30*** (0.09)	0.20* (0.11)	-0.04 (0.02)	0.19 (0.11)	
LDC*new season	0.09 (0.09)	0.09 (0.12)	0.03 (0.03)	0.08 (0.13)	
Total Paid attendance					-0.18 (0.18)
Number of observations	692	422	503	365	396
Adjusted R ²	0.54	0.61	0.62	0.56	0.12

* p<0.1, **p<0.05, ***p<0.01, Robust standard errors are in parentheses. AEI is suggested by a unanimous referee and calculated as follows: (Paid attendance/performance)/(Number of seats available net of free seats), which varies between zero and one. I thank the referee for this contribution.

Table 2. Attendance and Performance for 2004-2005 Season

	Regression I	Regression II	Regression IIa Alternative	Regression III	Regression IV
Dependent Var. :	Paid attendance	Paid attendance	Efficiency Index	Paid attendance	Performances
Estimation Method :	TOBIT Estimation	TOBIT Estimation	TOBIT Estimation	2SLS	2SLS
Constant	1.60*** (0.27)	1.12*** (0.32)	1.38*** (0.06)	-0.67 (1.28)	1.32*** (0.37)
Seat	0.77*** (0.04)	0.86*** (0.05)	-0.0003*** (7.5E-05)	1.17*** (0.27)	-0.36* (0.19)
Price	-0.41*** (0.06)	-0.39*** (0.08)	-0.08*** (0.01)	-0.48** (0.21)	
Number of Performances	-0.08** (0.03)	-0.03 (0.03)	-0.005** (0.002)	0.77 (0.75)	
Cumulative performances		0.004 (0.03)	0.0001 (0.0004)	-0.01 (0.05)	0.004*** (0.001)
Free passes	0.07*** (0.02)	0.02 (0.03)	0.0001*** (2.4E-05)	-0.35 (0.37)	
National Author	-0.01 (0.05)	-0.001 (0.05)	0.00008 (0.03)	0.12 (0.13)	-0.13* (0.07)
Less developed city	-0.55*** (0.10)	-0.47*** (0.15)	-0.30*** (0.05)	-0.85 (0.53)	0.11 (0.13)
New season	-0.09* (0.05)	-0.12* (0.06)	-0.04 (0.03)	-0.22 (0.14)	0.51*** (0.10)
Touring	-0.11 (0.10)				
Less developed*touring	0.79*** (0.13)				
Less developed*national author	-0.09 (0.08)	-0.22* (0.12)	-0.08* (0.04)	-0.18 (0.16)	
Less developed*new season	-0.16* (0.09)	-0.33** (0.13)	-0.09* (0.05)	-0.33* (0.17)	
Total Paid attendance					0.38* (0.21)
Number of observations	558	349	511	317	396
Adjusted R ²	0.60	0.63	0.66	0.29	0.01

* p<0.1, **p<0.05, ***p<0.01, Robust standard errors are in parentheses. AEI is suggested by a unanimous referee and calculated as follows: (Paid attendance/performance)/(Number of seats available net of free seats), which varies between zero and one. I thank the referee for this contribution.

It is observed in Table 1 that the number of performances does not affect the total paid attendance as Regression I-Regression III indicates. In Regression III, performance is instrumented taking into account the possibility of endogeneity. One period lag of performance is chosen as an instrument and the results still indicate that the number of performances does not affect the total paid attendance. Regression II indicates that cumulative number of performances does not affect the total paid attendance either. These results can be interpreted as evidence that the number of performances, as exogenous variables in the first three regressions in Table 1, does not affect the total paid attendance. This is taken as an indication of inefficiency in the state theaters since it is expected that the number of performances positively and significantly affect the total paid attendance. They should not wait until performances become insignificant or negatively significant. New season plays are the exception of this judgment since new season plays might not be performed enough number of times, therefore there might be no systematic relationship between attendance and number of performance for new season plays. For this reason, regressions are controlled for the new season plays by including a dummy for new season plays.

Endogeneity of the number of performances is also investigated. Therefore, the total number of performance is modeled as a dependent variable in Regression IV. Total paid attendance is one of the exogenous variables in this regression. This is not implausible since state theaters can not control the total paid attendance directly even if they want to, whereas they can control the total number of performances directly since they can end the performances of a play with an administrative decision. Therefore, efficiency of state theaters can be judged by how optimum the number of performances is. Results of this regression are given in Regressions IV. Regression IV indicates that total paid attendance is not affecting the total number of performance. This finding is not confirming the claims of the Chair of Dramaturgy Council. New season plays are performed more, and cumulative performances positively affect the current period performances.

Regression I differs from Regression II only in investigating the effects of cumulative performances on total paid attendance in Regression II. Touring and cumulative performances can not be in the same regressions since when plays tour in different towns, cumulative performance variable is irrelevant since those plays are not performed in those toured towns before. For this reason, two separate regressions are run.

Regression I-Regression III indicate that price is a significant variable and has expected sign. Performance is either insignificant or negatively significant, indicating the possibility of inefficiencies in the state theaters in terms of number of performances. It is either the fact that plays are performed too many times or that performance is not taken into account in understanding what determines the attendance. Less developed cities attract smaller number of paid attendance. New season plays are attracting less number of people. This might be the fact that

- a. New season plays are usually put on stage toward the end of the season
- b. There is no advertising of plays in state theaters
- c. People are so hesitant to see something unknown.

Touring in less developed cities attract higher paid attendance per performance. This is very intuitive since in those less developed cities, there are no cultural activities in most of the times. These touring plays are *cultural shocks* to those towns and are performed only a few times in one or two days. Therefore, people don't want to miss the plays which are not easy to come across.

In terms of efficiency of state theaters, 2004-2005 season is better than the previous season since total paid attendance is significantly and positively affecting the total number of performances. However, if there are only two factors affecting the number of performances as

the head dramaturge of state theaters claims, then small R^2 is taken as a sign that the weight of audience interest is too small in determining the number of performances of the plays.

4. Conclusion

This paper investigates the attendance and efficiency of state theaters in Turkey. It is found that public theater attendance is price inelastic since theater expenses occupy a small space in theatergoers' budget sets. This is true since theater tickets are subsidized by almost 97 percent (Akdede and King, 2005)

Touring to less developed cities attract more attendance per performance compared to changing the stages for a particular play on most developed cities. This finding suggests that state theaters should tour to different less developed cities more. This can diminish the criticism to state theaters also since popular press criticizes the state theaters in terms of producing many ATMactors.

Results of 2003-2004 season indicate that performance is not a significant determinant of total paid attendance, whereas 2004-2005 season indicates that plays are performed too many times since performance is negatively and significantly affecting total paid attendance.

Endogeneity of total number of performances and total paid attendance is taken into account and a 2SLS is run for both regressions. Results are not changed in the sense that total number of performances is not significant, that is, total paid attendance is not affected by the total number of performances. Therefore, some plays should have been off-staged before they run as long as they actually have.

The claim of the Chair of Dramaturgy Council is also tested that audience interest is one of the determinants of total number of performance. This claim is not confirmed by our results since attendance is not significantly affecting the total number of performances. This is taken as a sign of inefficiencies in the State Theaters. As a policy recommendation, more statistical analysis is necessary in terms of audience interest and attention to improve the efficiency of state theaters.

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